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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/880,207	06/13/2001	Wilhelmus Hendrikus Alfonsus Bruls	PHNL 000345	5320

24737 7590 09/07/2005

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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EXAMINER	
ROSARIO, DENNIS	
ART UNIT	**PAPER NUMBER**
2621	

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)	
	09/880,207	BRULS ET AL.	
	Examiner	Art Unit	
	Dennis Rosario	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *amt. June 17, 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 October 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment was received on June 17, 2005. Claims 1-16 are pending.

Claim Objections

2. Due to the amendment, the objection to claims 3,5,6 and 13 are withdrawn. Note that claim 10 remains objected.

3. The following quotations of 37 CFR § 1.75(a) is the basis of objection:

> (a) The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery.

4. Claims 10 and 16 are objected to under 37 CFR § 1.75(a) as failing to particularly point out and distinctly claim the subject matter which the applicant regards as his invention or discovery.

Regarding claim 10, line 10: "(P_t, M_i)" ought to be deleted to maintain consistency since the same notation was deleted in claim 10, line 4.

However, claim 10 could be better understood while maintaining the original notations if claim 10 were amended to:

10. The method of noise filtering as claimed in claim 3,

a) wherein the spatial spread (S_{spat}) is calculated from **at least two** spatially displaced original pixel values (P_t, M_i) in the set of original pixel values (P_t, M_i, P_{t1}, P_{t2}); and

b) the temporal spread (S_{temp}) is calculated from temporally displaced original pixel values (P_t, P_{t1}, P_{t2}) in the set of original pixel values (P_t, M_i, P_{t1}, P_{t2}) and

c) weighting the spatially displaced original pixel values (P_t, M_i) under control of

c1) the spatial spread (S_{spat}) and

c2) the temporally displaced original pixel values (P_t, P_{t1}, P_{t2})

under control of the temporal spread (S_{temp}).

However, such an amendment will require amending claims 1 and 3 to maintain antecedent basis and consistency of the notation as shown:

1. A method of noise filtering an image sequence (V1), comprising the steps of:

a) determining statistics from a spatial spread of a set of original pixel values (P_t, M_i, $\mathbf{P_{t1}}$, $\mathbf{P_{t2}}$) in at least one image of the image sequence (V1); and

b) calculating at least one filtered pixel value (P_t') from the set of original pixel values (P_t, M_i, $\mathbf{P_{t1}}$, $\mathbf{P_{t2}}$) obtained from the at least one image, wherein the original pixel values (P_t, M_i, $\mathbf{P_{t1}}$, $\mathbf{P_{t2}}$) are weighted under control of the statistics.

Claim 3:

The method of noise filtering as claimed in claim 1, further comprising:

a) determining a temporal spread (S_{temp}) of the set of original pixel values (P_t, M_i, $\mathbf{P_{t1}}$, $\mathbf{P_{t2}}$).

Note page 11 of the specification, lines 22,23 for future reference.

Regarding claim 16, line 2: “sequence created” ought to be amended to “sequence **are** created”.

Drawings

5. The drawings of figure 7 are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s), "F_1" mentioned in the description:

Page 10, line 27 mentions "the future F_1"; however, "F_1" is not shown in figure 7. Note that "F_1" is shown in fig. 5.

6. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

7. The disclosure is objected to because of the following informalities:

Page 5, line 16: "Fig. 2." Ought to be amended to "Fig. 4.".

Page 10, line 14: "formula (5)" ought to be amended to "formula (7)".

Appropriate correction is required.

Response to Arguments

8. Applicant's arguments on page 10, 2-10 of the remarks filed 6/17/2005 have been fully considered but they are not persuasive and states in pertinent part:

Allred et al. forms a temporal difference between...an image and...a delayed filtered image...This is completely different from a spatial spread of pixels from an input image, where the spread is based on differences...in the same image.

Thus, this argument is stating that Allred et al. discloses a temporal spread that is based on a difference between two images and is not the claimed spatial spread that is based on differences in the same image.

Note that the claimed spatial spread appears to be defined on page 9 of the remarks and states:

In particular, the specification, on page 2, lines 9-12, states “The spread is a measure based on differences between pixel values...[regardless of a temporal and/or spatial relationship.]”

In light of the above statement, Allred et al. does disclose a spatial spread that is based on differences in the same image or as claimed:

Determining statistics (Fig. 2, num. 18 determines statistics or a "value" in col. 6, line 15.) from a spatial spread (Fig. 2, num. 18 determines statistics or a "value" in col. 6, line 15 from a spatial spread or "average" in col. 6, line 17 where the average is a measure based on differences or "...difference values... surrounding a pixel of interest..." in col. 6, lines 14,15. Note that the above mentioned word "surrounding" is a spatial feature. Note that the difference values may have originally been computed temporally to create a temporal spread or difference between two images, but the temporal spread or "pixel differ-ence values 'D' (col. 4, lines 40,41)" is grouped in a "group" in col. 6, line 4, as shown in fig. 5a, spatially where fig. 2, num. 18 operates on pixel "difference [temporal] values," K1-K24 of fig. 5a, "surrounding a pixel of interest x(n) [as shown in fig. 5a] (col. 6, lines 14,15)." Thus, the temporal difference values K1-K24 are spatially grouped to form one image in order to compute the above-mentioned average or the claimed spread where the average or the claimed spread is a measure based on spatially grouped temporal differences.) of a set of original pixel values (P_t, $M_{i,}$) in at least one image of the image sequence (V1).

Regarding page 10, lines 11-13 of the remarks, which states:

It is noted that the claims recite that the spatial spread is determined in at least one image of the image sequence. This means that a separate spatial spread is determined for each image.

In light of page 10, lines 11-13 of the remarks, claim 1 reads is pertinent part:

A method of noise filtering an image sequence (V1), comprising the steps of:

a) determining statistics from a spatial spread of a set of original pixel values (P_t, $M_{i,}$) in at least one image of the image sequence (V1)...

Where the origin of the spatial spread is not clear. Claim 1 is broad enough to interpret claim 1 where the spatial spread is determined from one image or two images or three images etc..., which does not make sense: how is a spatial spread determined in 2 or 3 images in light of page 10, lines 11-13 of the remarks? For example, claim 1 does not claim that a spatial spread is determined only from image number 3 from a sequence of 100 images that are numbered from 1-100 or two spatial spreads from two images, respectively or correspondingly, numbered 50 and 100 from an image sequence of 1000 images that are numbered from 1-1000. Instead, claim 1 is interpreted to mean that a spatial spread is determined from one image or two images or three images and so on where there is no corresponding relationship between each spatial spread and each image of an image sequence.

Claim 1 appears to be missing a step of:

determining a spatial spread in at least one image of an image sequence.

Thus, claim 1 ought to be amended to:

1. A method of noise filtering an image sequence (V1), comprising the steps of:

a) **determining a spatial spread in at least one image of the image sequence (V1); and**

b) determining statistics from **the** [a] spatial spread of a set of original pixel values (P_t, M_i, $\mathbf{P_{t1}}$, $\mathbf{P_{t2}}$) in at least one **of said** image of the image sequence (V1); and

c) calculating at least one filtered pixel value (P_t') from the set of original pixel values (P_t, M_i, $\mathbf{P_{t1}}$, $\mathbf{P_{t2}}$) obtained from the at least one **of said** image, wherein the original pixel values (P_t, M_i, $\mathbf{P_{t1}}$, $\mathbf{P_{t2}}$) are weighted under control of the statistics.

However, this proposed amendment would require a new search and/or consideration. Allred et al. appears to be determining a spatial spread; however, Allred et al. does not determine a spatial spread by computing differences in one image. Allred et al. determines in a broadest reasonable interpretation a spatial spread by placing differences values; hence the spread interpretation, in different positions; hence the spatial interpretation, in one image. Where the difference values were temporally determined by computing differences between two images.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-13,15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Allred et al. (US Patent 6,310,982 B1).

Regarding claim 15, Allred et al. discloses a device for noise filtering an image sequence (V1), the device comprising the steps of:

a1) determining means (Fig. 2,num. 18: Spatial Filter) for determining statistics (Fig. 2,num. 18: Spatial Filter determines statistics or "averages the difference values" in col. 4, lines 64,65 which is represented as "M" in fig. 2.) from a spatial spread (Fig. 2,num. 18: Spatial Filter operating receives difference values, K1-K24 as shown in fig. 2, label "D", which are spatially arranged as shown in fig. 5a. According to the after final amendment, the spread is based on a difference on page 4, last paragraph. Hence, the values, K1-K24 of fig. 5a and shown in fig. 2, label "D", are spatial spread or spatial difference values spatially arranged as shown in fig. 5a.) of a set of original pixel values (Fig. 2, label: Xi(t) in an "incoming image frame" in col. 4, line 28 of pixels.) (P_t, M_i) in at least one image (Fig. 2, labels Xi(t) and Xo(t-1) are two images or frames where the spread of difference, "D", is generated to determine statistics or the average in fig. 2,num. 18.) of the image sequence (V1) (Fig. 2, label, Xi(t) corresponds to a "current frame", while Xo(t-1) corresponds to a "previously displayed frame" in col. 5, lines 32-35. Hence, the current frame is of an image sequence.) *or alternatively*

a2) determining means for determining statistics (Fig. 2, num. 18 is a means that determines statistics or a "value" in col. 6, line 15 as shown in fig. 2, label "M".) from a spatial spread (Fig. 2, num. 18 determines statistics or a "value" in col. 6, line 15 from a spatial spread or "average" in col. 6, line 17 where the average is a measure based on differences or based on "...difference values... surrounding a pixel of interest..." in col. 6, lines 14,15. Note that the above mentioned word "surrounding" is a spatial feature. Note that the difference values may have originally been computed temporally to create a temporal spread or difference between two images, but the temporal spread or "pixel differ-ence values 'D' (col. 4, lines 40,41)" is grouped in a "group" in col. 6, line 4, as shown in fig. 5a, spatially where fig. 2, num. 18 operates on pixel "difference [temporal] values," K1-K24 of fig. 5a, "surrounding a pixel of interest x(n) [as shown in fig. 5a] (col. 6, lines 14,15)." Thus, the temporal difference values K1-K24 are spatially grouped to form one image in order to compute the above-mentioned average or the claimed spread where the average or the claimed spread is a measure based on spatially grouped temporal differences.) of a set of original pixel values (P_t, M_i,) (Fig. 2, label: "Xi(t)" is a frame of original pixel values) in at least one image of the image sequence (V1); and

b1) filtering means (Figs.1, 2, num. 30 is an output of a filter that calculates.) for calculating at least one filtered pixel value (P_t') (Figs.1, 2, num. 30 calculates a filtered via num. 26: Filter Functions pixel value Xo(t) of fig. 2.) from the set of original pixel values (P_t, M_i) (Fig. 2, label: Xi(t) in an "incoming image frame" in col. 4, line 28 of pixels.) obtained (Xi(t) in an incoming image frame or "second frame" in col. 6, line 28 "captur[ed]..." in col. 6, lines 27,28.) from the at least one image (Fig. 2, labels Xi(t) and Xo(t-1) are two images or frames where Xi(t) is captured.), wherein the original pixel values (P_t, M_i) (Fig. 2, label: Xi(t) in an "incoming image frame" in col. 4, line 28 of pixels.) are weighted (Fig. 2, num. 38: Weighted Average or Signal Ratios weights the original pixel values Xi(t) via a device of numeral 14, fig. 1 and shown again unlabeled in fig. 2.) under control (Fig. 2, num 22: Control controls fig. 2, num. 38: Weighted Average or Signal Ratios, via an arrow between numerals 22 and 38.) of the statistics (Fig. 2,num 22: Control controls fig. 2, num. 38: Weighted Average or Signal Ratios, via an arrow between numerals 22 and 38, using "'M'" in col. 6, line 15 which was "produce[d]" in col. 6, line 15 using the "averages" in col. 4, lines 64,65 also mentioned again as an "average of the pixel difference values" in col. 6, lines 13,14.) _or alternatively_

b2) filtering means (Fig. 1 is a filtering means.) for calculating at least one filtered pixel value (P_t') (Fig. 1 is a filtering means for calculating at least one pixel value, "X(n)" as shown in fig. 5a.) from the set of original pixel values (P_t, M_i) (Fig. 1 is a filtering means for calculating at least one pixel value, "X(n)" as shown in fig. 5a from the set of original pixel values as shown in fig. 2, label: "Xi(t)".) obtained from the at least one image, wherein the original pixel values (P_t, M_i) are weighted (Fig. 2, label: "Xi(t)" are weighted with "gain coefficients" in col. 1, lines 19,30 or "filtering coefficients" in col. 4, line 60 and "filtering coef-ficients" in col. 5, line 11,12.) under control of the statistics (Fig. 2, label: "Xi(t)" are weighted with "gain coefficients" in col. 1, lines 19,30 or "filtering coefficients" in col. 4, line 60 or "filtering coef-ficients" in col. 5, line 11,12 of fig. 2 under control via fig. 2,num. 22 of the statistics or the "value" in col. 6, line 15 as shown in fig. 2, label "M" computed in fig. 2, num. 18.).

Claim 1 is rejected the same as claim 15. Thus, argument similar to that presented above for claim 15 of a device is equally applicable to the method of claim 1.

Claim 16 is rejected the same as claim 15. Thus, argument similar to that presented above for claim 15 is equally applicable to claim 16 except for the additional limitation disclosed by Allred et al. of:

a) receiving means (fig. 2,num. 34:Memory) for receiving filtered images (X0(t) represents a filtered image from a filter 26: Filter Functions.), wherein the filtered images (Xo(t) of fig. 2) of the image sequence (Xo(t-1) and Xi(t) represent an image sequence to generate the image of Xo(t).) created by a device (Fig. 2 is a device that created the image sequence.) comprising means as disclosed in claim 15.

Regarding claim 2, Allred et al. discloses the method of noise filtering as claimed in claim 1, wherein the step of calculating comprises the steps of:

a) weighting (Fig. 2, num. 38: Weighted Average or Signal Ratios) the set of original pixel values (P_t, M_i) (Fig. 2, num. 38: Weighted Average or Signal Ratios weights the original pixel values Xi(t) via a device of numeral 14, fig. 1 and shown again unlabeled in fig. 2.) under control (Fig. 2, num 22: Control controls fig. 2, num. 38: Weighted Average or Signal Ratios, via an arrow between numerals 22 and 38.) of the statistics (Fig. 2,num 22: Control controls fig. 2, num. 38: Weighted Average or Signal Ratios, via an arrow between numerals 22 and 38, using "'M'" in col. 6, line 15 which was "produce[d]" in col. 6, line 15 using the "averages" in col. 4, lines 64,65 also mentioned again as an "average of the pixel difference values" in col. 6, lines 13,14.) to obtain a weighted set of pixel values (P_t, N_i) (The output of fig. 2,num. 38: Weighted Average or Signal Ratios is a weighted set of pixel values.); and

b) furnishing the weighted set of pixel values (P_t, N_i) (The output of fig. 2,num. 38: Weighted Average or Signal Ratios is a weighted set of pixel values.) to a static filter (The output of fig. 2,num. 38: Weighted Average or Signal Ratios is a weighted set of pixel values that is furnished to a static filter shown in fig. 2, num. 26: Filter Functions.), in which the at least one filtered pixel value (P_t') is calculated (Figs.1, 2, num. 30 calculates a filtered via num. 26: Filter Functions pixel value Xo(t) of fig. 2.) from (via numerals 26 and an adder symbol with two plus signs.) the weighted set of pixel values (P_t, N_i) (The output of fig. 2,num. 38: Weighted Average or Signal Ratios is a weighted set of pixel values .).

Regarding claim 3, Allred et al. discloses the method of noise filtering as claimed in claim 1, further comprising:

a) determining a temporal spread (S_{temp}) (Fig. 2, label 14 is shown again unlabeled in fig. 2 determines a difference or spread using time or temporal values "t" for signal Xi(t) and time "t-1" for signal Xo(t-1).) of the set of original pixel values (P_t, M_i) (Fig. 2, label: Xi(t) in an "incoming image frame" in col. 4, line 28 of pixels.).

Regarding claim 4, Allred et al. discloses the method as claimed in claim 13, wherein the spread (S) (The values, K1-K24 of fig. 5a and shown in fig. 2, label "D", are a spatial spread or spatial difference values spatially arranged as shown in fig. 5a.) is a sum (An "average" of D in col. 4, line 65 is a sum.) of absolute differences (An "average" of D in col. 4, line 65 is a sum of "difference values" in col. 4, line 65.), a given absolute difference ("difference values" in col. 4, line 65) being obtained (via a round symbol with a plus and minus sign in fig. 2) by subtracting an average pixel value (Fig. 2, label: xo(t-1) is an average pixel value that is based upon a "signal output" in col. 5, line 21 that is "based" in col. 5, line 21 on a signal from fig. 2,num. 18:Spatial Filter as mentioned in col. 5, lines 20-22. Note that fig. 2,num. 18:Spatial Filter generates an "average" in col. 4, line 65 that is used to generate the above mentioned signal output that is used to generate the claimed average pixel value Xo(t).) from (via numerals 18,22,38 and 26 and a circle with two plus signs.) a given original pixel value (P_t, M_i) (Fig. 2, label: Xi(t) in an "incoming image frame" in col. 4, line 28 of pixels.).

Regarding claim 5, Allred et al. discloses the method of noise filtering as claimed in claim 1, wherein the set of original pixel values (P_t, M_i) (Fig. 2, label: Xi(t) in an "incoming image frame" in col. 4, line 28 of pixels.) include a central pixel value (P_t) (Fig. 5a, label: "X(n)" also referred to as "the pixel of interest" in col. 2, line 40.) and surrounding pixel values (M_i) (fig. 5a, labels: K1-K24), wherein as a result of [the] **a** noise filtering (Fig. 2, num. 26, Filter Functions), the central pixel value (P_t) (Fig. 5a, label: "X(n)") is replaced (as mentioned in col. 2, lines 40-47) by the filtered pixel value (P_t') (Figs.1, 2, num. 30 calculates a filtered via num. 26: Filter Functions pixel value Xo(t) of fig. 2.).

Regarding claim 6, Allred et al. discloses the method of noise filtering as claimed in claim 2, wherein the set of weighted pixel values (P_t, N_i) (The output of fig. 2,num. 38: Weighted Average or Signal Ratios is a weighted set of pixel values.) is obtained by taking, ("The control takes" in col. 5, line 4. Note "The control takes" is in error and ought to read, "The weighted average or signal ratios takes", because the related context in col. 5, lines 1-12 is directed towards "The weighted averaging unit 38" in col. 5, line 1.) for each pixel value in the set of original pixel values (P_t, M_i) (Fig. 2, label: Xi(t) in an "incoming image frame" in col. 4, line 28 of pixels as shown in fig. 5a that contains pixel "values surrounding the pixel of interest" in col. 5, lines 6,7.), a combination ("ratio or combination" in col. 5, line 9 of the above mentioned surrounding pixel values and a "pixel of interest" in col. 5, line 8.) of a portion ∀ of said each pixel value in the set of original pixel values (P_t, M_i) (Fig. 2, label: Xi(t) in an "incoming image frame" in col. 4, line 28 of pixels and shown in fig. 5a as surrounding pixel values K1-K24.) and a portion 1-∀ of a central pixel value (P_t) (fig. 5a, label: "X(n)" is the above mentioned pixel of interest.).

Regarding claim 7, Allred et al. discloses the method of noise filtering as claimed in claim 1, wherein the statistics (Fig. 2, num. 18 determines statistics or a "value" in col. 6, line 15.) are furnished to a look-up table (Fig. 2, num. 18 determines statistics or a "value" in col. 6, line 15 that are furnished to a "look up table" in col. 5, line 17...), a control signal ($\forall$) being obtained from said look-up table (Fig. 2, num. 18 determines statistics or a "value" in col. 6, line 15 that are furnished to a "look up table" in col. 5, line 17 wherein a control signal, as shown in fig. 4c, label: (M+D)/2 is "a mix of the signals produced from the 'D' and 'M' (col. 5, lines 18,19)" where "M" is a "motion value control signal" in col. 3, line 12 and " 'D' and...'M' are used to control" in col. 5, lines 27,28, is being obtained by or "sent to", in col. 5, line 20, fig. 2, num. 26 from said look-up table.), said control signal ($\forall$) (Fig. 4c, label: (M+D)/2...) controlling the weighting (Fig. 4c, label: (M+D)/2 controls the weighting or "filter[ing]" in col. 5, line 28 where the filter inherently includes "filtering coefficients[or weights]" in col. 5, line 11.).

Regarding claim 8, Allred et al. discloses the method of noise filtering as claimed in claim 2, wherein the at least one filtered pixel value (P_t') is obtained by calculating (Figs.1, 2, num. 30 calculates a filtered via num. 26: Filter Functions pixel value Xo(t) of fig. 2.) a median ("pixel of interest" in col. 2, line 43 corresponds to a middle of a square as shown in fig. 5a, label: X(n).) of the weighted set of pixel values (The output of fig. 2,num. 38: Weighted Average or Signal Ratios is a weighted set of pixel values.).

Regarding claim 9, Allred et al. discloses the method of noise filtering as claimed in claim 2, wherein the at least one filtered pixel value (P_t') is obtained by calculating (Figs.1, 2, num. 30: calculates a filtered via num. 26: Filter Functions pixel value Xo(t) of fig. 2.) an average of the weighted set of pixel values (P_t, N_i) (The output of fig. 2,num. 38: Weighted Average or Signal Ratios is a weighted set of pixel values that is inputted to fig. 2,num. 30 as shown in fig. 1 via numeral 26 to generate the filtered pixel value Xo(t) of fig. 2.).

Regarding claim 10, Allred et al. discloses the method of noise filtering as claimed in claim 3, wherein:

a) the spatial spread (S_{spat}) (The values, K1-K24 of fig. 5a and shown in fig. 2, label "D", are spatial spread or spatial difference values spatially arranged as shown in fig. 5a.) is calculated from spatially displaced original pixel values (Fig. 2, label: Xi(t) in an "incoming image frame" in col. 4, line 28 of pixels and shown in fig. 5a as surrounding or displaced pixel values K1-K24 that correspond to the signal of Xo(t-1) of fig. 2 that is used to generate "D" or the spread that is spatially arranged using fig. 5a.) in the set of original pixel values (P_t, M_i,) (Fig. 2, label: Xi(t) in an "incoming image frame" in col. 4, line 28 of pixels and shown in fig. 5a as surrounding pixel values K1-K24.); and

b) the temporal spread (S_{temp}) is calculated (Fig. 2, label 14 is shown again unlabeled in fig. 2 calculates a difference or spread using time or temporal values "t" for signal Xi(t) and time "t-1" for signal Xo(t-1).) from temporally displaced original pixel values (P_t, P_{t1}, P_{t2}) (Fig. 2, labels Xi(t) and Xo(t-1) are temporally displaced original pixel values.) in the set of original pixel values (P_t, M_i) (Fig. 2, label: Xi(t) in an "incoming image frame" in col. 4, line 28 of pixels in time "(t)" and shown in fig. 5a as surrounding pixel values K1-K24 and X(n).) and

c) weighting (Fig. 2, num. 38: Weighted Average or Signal Ratios)

c1) the spatially displaced original pixel values (P_t, M_i) (Fig. 2, num. 38: Weighted Average or Signal Ratios weighs "surrounding...[values]" in col. 5, lines 4-6 from fig. 2, label: Xi(t) which is an "incoming image frame" in col. 4, line 28 of pixels and shown in fig. 5a as surrounding or displaced pixel values K1-K24 that correspond to the signal of Xo(t-1) of fig. 2 that is used to generate "D" or the spread that is spatially arranged using fig. 5a.) under control (Fig. 2, num. 22: Control controls fig. 2, num. 38: Weighted Average or Signal Ratios, via an arrow between numerals 22 and 38.) of the spatial spread (S_{spat}) (Fig. 2,num 22: Control controls fig. 2, num. 38: Weighted Average or Signal Ratios, via an arrow between numerals 22 and 38, using "'M'" in col. 6, line 15 which was "produce[d]" in col. 6, line 15, via the values, K1-K24 of fig. 5a and shown in fig. 2, label "D", which are spatial spread or spatial difference values spatially arranged as shown in fig. 5a, using the "averages" in col. 4, lines 64,65 also mentioned again as an "average of the pixel difference values" in col. 6, lines 13,14 to produce "M" of fig. 2.) and;

c2) the temporally displaced original pixel values (P_t, P_{t1}, P_{t2}) (Fig. 2, labels Xi(t) and Xo(t-1) are temporally displaced original pixel values that produce a value "D" as shown in fig. 2 that is weighted using fig. 2, num. 38: Weighted Average or Signal Ratios.) under control (via the difference value D of fig. 2 or "Pixel Change" of fig. 4a controls the weighting as shown in fig. 4a where labels "1" thru "7" are weights.) of the temporal spread (S_{temp}) (Fig. 2, label 14 is shown again unlabeled in fig. 2 calculates a difference ,"D" as shown in fig. 2 and shown alternatively in fig. 4a as "Pixel Change" as mentioned under "individual pixel differences" in col. 5, lines 61-63, or spread using time or temporal values "t" for signal Xi(t) and time "t-1" for signal Xo(t-1). Note that the above-mentioned individual pixel differences correspond to the difference, D, as shown in fig. 2. Thus, the differences, D, of fig. 2 or "Pixel Change" of fig. 4a determines a weight shown in fig. 4a, labels "1" thru "7" in fig. 2,num. 38: Weighted Average or Signal Ratios under control of the differences, D.).

Regarding claim 11, Allred et al. discloses the method of noise filtering as claimed in claim 10, wherein the weighted temporally displaced original pixel values (P_t, P_{t1}, P_{t2}) (Fig. 2, labels Xi(t) and Xo(t-1) are temporally displaced original pixel values that produce a value "D" as shown in fig. 2 that is weighted using fig. 2, num. 38: Weighted Average or Signal Ratios.) are divided (Fig. 2, labels Xi(t) and Xo(t-1) are temporally displaced original pixel values that produce a value "D" as shown in fig. 2 that is averaged using fig. 2, num. 38: Weighted Average or Signal Ratios. Note that averaging includes a division. Thus, "D" is divided using an average to obtain an average of "D".) to lessen their weight in the filtering (Fig. 2,num. 26: Filter Functions).

Regarding claim 12, Allred et al. discloses the method of noise filtering as claimed in claim 10, wherein the temporally displaced original pixel values (Fig. 2, labels Xi(t) and Xo(t-1) are temporally displaced original pixel values that produce a value "D" as shown in fig. 2 that is weighted using fig. 2, num. 38: Weighted Average or Signal Ratios.) include two original pixel values (P_{t1}, P_{t2}) (Fig. 2, labels Xi(t) and Xo(t-1) are temporally displaced original pixel values.) from different fields (The signal Xi(t) represents an "incoming or unfiltered pixel value of the same pixel location in the next frame (col. 2, lines 33,34)", while Xo(t-1) represents "...the initial or filtered pixel value of a pixel in the stored frame...(col. 2, lines 31-33)." Since Xi(t) represents a pixel in a next frame and Xo(t-1) represents a pixel in the stored frame, both pixels are in different fields since they are in different frames.) in a same frame (F_0) (Both pixels are used to generate a "new frame" in col. 2, line 51.) and at least one original pixel value of a previous frame (F_{-1}) (Xo(t-1) represents "...the initial or filtered pixel value of a pixel in the stored frame...(col. 2, lines 31-33)." Where the stored frame is the previous frame in relation to the frame of Xo(t).)

Regarding claim 13, Allred et al. discloses the method of noise filtering as claimed in claim 12, wherein said temporally displaced original pixel values (fig. 2, label Xo(t)) are temporally filtered (fig. 2, label Xo(t) is a pixel value with time "t" and is temporally filtered via fig. 2, num. 26 also note that fig. 3 is a temporal filter, that outputs the above mentioned Xo(t), modified in fig. 2.).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allred et al. (US Patent 6,310,982 B1) in view of Kessen et al. (US Patent 5,055,927 A).

Regarding claim 14, Allred et al. teaches a method of encoding (1) an image sequence (V1), comprising the steps of:

a) encoding a plurality of filtered images, wherein the filtered images are obtained by the steps as disclosed by Allred et al. in claim 1. Thus, claims 14 is rejected the same as claim 1. Thus, argument similar to that presented above for claim 1 is equally applicable to claim 14 except for the limitation of encoding.

Allred et al. does teach that the signal Xo(t) or "output" in col. 4, line 53 can be used for "other processes" in col. 4, line 54; and

Kessen et al. does teach a process as suggested by Allred et al. of

a) encoding (Fig. 1, num. 2 and 6 receive images.) a plurality of filtered images (Fig. 1 "HDTV" on the left and right ends are the same. Note that HDTV of fig. 1 is produced from a filter 9 of fig. 1.).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Allred et al.'s output with Kessen et al.'s encoding, because

Kessen et al.'s encoding "produces a standard...signal" in col. 2, line 38. Thus, Allred et al.'s output can be standardized or compatible with other processes.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Otsuka et al. (JP 2003324738 A) is pertinent as teaching a method of determining spatial differences that are used to determine coefficients or weights.

Hsu et al. (US Patent 6,847,405 B2) is pertinent as teaching a method of obtaining differences in one image as shown in figure 2.

Gupta et al. (US Patent 5,920,356 A) is pertinent as teaching a method of detecting edges in figure 8 using "tem-poral and edge characteristics" in abstract.

Guissin (US Patent 5,799,111 A) is pertinent as teaching a method of spatial and temporal filtering.

Lee et al. (US Patent 5,633,511 A) is pertinent as teaching a method of determining a spatial spread in fig. 7, num. 92.

Note that the cited art teaches a spatial spread even if the word spatial spread is not used except for the Lee et al. reference.

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario whose telephone number is (571) 272-7397. The examiner can normally be reached on 6-3.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571) 272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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